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ABSTRACT

A reading comprehension program was developed and implemented that addressed the needs of sixth-grade students. The program focused on critical thinking skills using a teamwork approach. Each heterogeneous small group used a checklist composed of before, during, and after reading questions and activities. At the conclusion of the 12-week intervention, students were surveyed on opinions on solving problems, and given posttests on following directions and solving math story problems. Results indicated improved levels of reading comprehension skills in the target group of 30 students. There was a significant increase in critical thinking skills and written communication skills. Greater cooperation among students was observed. Findings suggest that the Reading Strategy Checklist can be used as a cooperative learning program to increase reading comprehension, develop critical thinking skills, improve written communication skills, and enhance whole class discussions. (The Reading Strategies Checklist, a survey instrument, following directions tests, and problem solving tests are attacned.) (RS)

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TEACHING READING COMPREHENSION STRATEGIES TO SIXTH GRADE STUDENTS TO IMPROVE CRITICAL THINKING

by

Brenda J. Long

A Practicum Report submitted to the Faculty of the Center for the Advancement of Education at Nova University in partial fulfillment of the requirements for the degree of Master of Science in Education.

The abstract of this report may be placed in National Database System for reference.

June, 1992

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Abstract

Teaching Reading Comprehension Strategies to Sixth Grade Students to Improve Critical Thinking.
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A reading comprehension program was developed and implemented by the author that addressed the needs of sixth grade students. The program focused on critical thinking skills using a teamwork approach. Each heterogeneous small group used a checklist composed of before, during, and after reading questions and activities.

The results indicated improved levels of reading comprehension skills in the target group. There was a significant increase in critical thinking skills and written communication skills. Greater cooperation among students was observed. It was concluded that the Reading Strategy Checklist can be used as a cooperative learning program to increase reading comprehension, develop critical thinking skills, improve written communication skills, and enhance whole class discussions. Appendices include the Reading Strategy Checklist, Survey of student opinions concerning math homework, and pretests/posttests.

Appendix S

Authorship Statement/Document release

Authorship Statement

I hereby testify that this paper and the work it reports are entirely my own. Where it has been necessary to draw from the work of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practice. I give this testimony freely, out of respect for the scholarship of other workers in the field and in the hope that my work, presented here, will earn similar respect.

Brenda J. Long
student's signature

Document Release

Permission is hereby given to Nova University to distribute copies of this applied research project on request from interested parties. It is my understanding that Nova University will not charge for this dissemination other than to cover the costs of duplicating, handling, and mailing of the materials.

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student's signature

June 16, 1992
date

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CHAPTER I

Purpose

School and Community Setting

The site of the practicum activity was in the most rapidly growing school located in a large city in the southwestern portion of our nation. The community was comprised of widely varied residential buildings which consisted of multi-acre horse properties, single family dwellings, townhomes, condos, and apartments. One area under development at the time was destined to become the most densely populated square mile in the city. While the single family homes and multi-unit dwellings were new, the horse properties had been in the area for over twenty years. Housing costs ranged from $70,000.00 to $500,000.00. Over two hundred of the students lived in the lower cost single family homes.

The school's population was 879. The racial percentages were: 92 percent Caucasian, 1 percent Hispanic, 2 percent Black, 3 percent Asian, and 2 percent other. Of the 879 students, 43 are on the free lunch program.

The Parent Teacher Association (PTA) was very active. The PTA held several fund-raising projects a year. The PTA used the funds to buy needed supplies for the school and to host many educational arts programs.

Work Setting and Role

The target school was a public elementary school housing students in kindergarten through grade six on one campus. The school opened in the Fall of 1989, with total enrollment of 547 students. The school was built to accomodate 680 students. The enrollment at the time of the practicum was 879. The district was in the planning stages of building a new school in the area that would accomodate the rapidly growing student population.

There were four sixth grade classes. Each class had an enrollment of 30 students. It was the responsibility of the author to teach 30 sixth grade students in a mainly self-contained classroom. One period each day the students switched classrooms for science. At the same time, another sixth grade class received social studies instruction in the author's classroom.

In the reading program of this school, heavy emphasis was placed on students' mastery of isolated reading skills by the use of workbooks and weekly skills tests. At the end of a unit, the students were given multiple choice tests to measure mastery of the reading skills. Other than a few questions at the end of the stories in the basal readers, no tests were required to measure the students' understanding of reading material. Each student moved up through the reading series as isolated skills were mastered.

The target group for this study was a sixth grade reading class that consisted of 30 students. These students ranged in age from 11 years 2 months to 12 years 11 months. Twenty-eight of the students in the class were at or above grade level as measured by reading program tests. One student received reading instruction in the school's LRC (learning resource center). One other student had been recently mainstreamed from special education. Six students were considered to be "high readers" according to reading series' skills tests. Twenty-two students were average readers.

The majority of the students appeared to enjoy pleasure reading during SSR (silent sustained

reading). There was a high level of anxiety toward informational reading in the subject areas and working math story problems. Verbal assistance from the teacher, a parent, or another student was preferred to actually reading. Students appeared to be insecure when expected to read for reasons other than pleasure.

Problem Documentation

Information was gathered by teacher observations, documentation of test scores over a four month period, and ITBS (Iowa Tests of Basic Skills). The higher order thinking skills, including reading comprehension and math problem solving, were the target group's lowest scores according to the class performance profiles of the April, 1991, ITBS scores. Reading comprehension scores averaged 33 percent lower on the higher order thinking skills section than on the regular reading section of the ITBS. Math problem solving scores averaged 43 percent lower on the higher order thinking skills section than on the math section of the ITBS. For documentation, the author recorded scores on social studies pop quizzes and math problem solving tests, given during the months of September through December, 1991.

Students' scores on pop quizzes over assigned reading in social studies indicated a comprehension problem. Six pop quizzes were given to determine how well students were comprehending reading assignments. Students were given 25 minutes to silently read a lesson in the social studies text, after which a quiz was given. Quizzes consisted of 10 to 15 questions on details, main ideas, and relevance of information. The overall class average for these pop quizzes was 43 percent. Students' chapter tests scores averaged 85 percent after the same information was covered in class. This indicated that students do not read critically on their own. Students had not been taught how to learn during independent reading.

Documentation of students' percentage of correct answers on math story problems further supported the problem that students did not know how to read critically to get the information needed to solve the story problems. The total class average of the story problem section of each of the first six math chapter tests was 62 percent. Parental complaints of children who could not understand story problems in math homework also documented that a reading comprehension problem existed.

The scores on higher order thinking skills on the ITBS should have been within five percent of the regular reading section. Students should have scored at least 70 percent on pop quizzes. Student averages on math story problems should have been at least 80 percent for students who were competent in the computations needed to solve the problems.

The following objectives were chosen as good measurements of reading comprehension. Students who could show mastery of these objectives, would demonstrate good critical reading and thinking skills. Students who used a strategy when reading, would be more confident in solving math story problems, following directions, and writing about what was read. The goal of good reading comprehension skills was independent learning.

1. After 12 weeks of critical reading instruction using a checklist, 80 percent of sixth grade students in the target group would demonstrate mastery of math story problem strategies as evidenced by a score of 80 percent or better on a teacher-made test.
2. After 12 weeks of critical reading instruction using a checklist, 80 percent of sixth grade students

in the target group would demonstrate 20 percent more positive attitudes toward math story problem homework as evidenced by student surveys.

3. After 12 weeks of critical reading instruction using a checklist, 80 percent of sixth grade students in the target group would demonstrate a mastery of independently following written directions as evidenced by a score of 80 percent or better on a teacher-made test.

4. After 12 weeks of critical reading instruction using a checklist, 80 percent of sixth grade students in the target group would demonstrate a 20 percent improvement in summarizing relevant information as evidenced by teacher's observation of students' summaries of reading selections over the 12 week implementation of the practicum project.

This practicum project would attempt to instill critical reading and thinking skills in the target group by teaching students a reading strategy. As a result, students' attitudes toward reading content material would improve.

CHAPTER II

Research and Solution Strategy

Literature Survey

Society today faces many problems. Unemployment, homeless people, large welfare roles, outrageously high governmental deficits, corrupt officials, trade deficits, bankruptcies, and high crime rates are but a few of the problems the society is facing. Will the students of today be ready to face these problems tomorrow? Are the goals of the schools to turn out citizens who depend on others to dictate what to think, how to live, and for whom to work? Citizens who are dependent on others can be easily controlled. Independent thinkers cannot be controlled. Citizens who can think independently are critical thinkers and know how to solve problems. Independent thinkers do not depend on the media, friends, family, or government for what to think. Obviously, these significant others are strong influences on thinking, but a critical thinker knows how to challenge all information before deciding on a truth. A true critical thinker is open minded to many points-of-view

and will consult many sources to challenge or support a belief. Therefore, reading comprehension is of utmost importance for ideas to be fully explored in order to face life's challenges. Gage, as quoted by Tierney (1989:136) states,

> Writing is thinking made tangible, thinking that can be examined because it is on the page and not in the head, invisible floating around. Writing is thinking that can be stopped and tinkered with. It is a way of holding thought still long enough to examine its structures, its possibilities, its flaws. The road to clearer understanding of one's thoughts is traveled on paper. It is through an attempt to find words for ourselves in which to express related ideas that we often discover what we think.

Reading is examining the organized thoughts of the writer and fitting those thoughts into mental schemata. "Critical thinking is reasoning reflective thinking that is focused on deciding what to believe and do" (Ennis, 1987).

In an effort to improve reading comprehension instruction, Garcia and Pearson (1990) found six interrelated strategies to be important in learning how to construct meaning from text. First, readers need to be able to determine what is important in the reading selection. If a reader cannot determine

importance, then comprehension is not taking place. Secondly, the reader must be able to synthesize information, or summarize, to get meaning from text. The third strategy is drawing inferences from what is read. Students use prior knowledge to answer scriptually implicit questions. The fourth strategy involves students in asking questions about text, which leads to the fifth strategy. By asking questions, students can monitor and control personal comprehension. The sixth strategy is adapting resources. This means that students will look back at the text or study the text longer to resolve a comprehension problem. The prior knowledge a student brings to the reading activity is inherent in all of the six comprehension strategies. "Without the activation of prior knowledge, it would be difficult for readers to determine what is important in text, to draw inferences, or to monitor comprehension" (Garcia and Pearson, 1990:7).

Winograd and Greenlee (1986) cite another strategic view of reading. The importance of the reader's purpose, self-monitoring, and motivation are the three essential aspects. Students need to be taught these reading strategies so that more control

over learning will occur. Teaching students these comprehension strategies will help students to focus on how, when, where, and why to use these strategies to get most from reading. Being able to use these strategies is motivation for reading and leads to better understanding of what is read.

Directed Reading-Thinking Activity (DRTA) is described in an article by Haggard (1988). The DRTA is different from basal reading programs. In DRTA, students sample the text, make predictions based on prior knowledge and textual information, resample the text, and confirm or adjust predictions according to new information. Steps in DRTA are (1) identifying purposes for reading, (2) Adjustment of rate to purposes and materials, (3) Observing the reading, (4) developing comprehension, and (5) Fundamental skill development. The advantages of DRTA are that it can be adjusted to basal stories, novels, and subject area texts and it promotes critical thinking because there is a continual probing for explanations or more information. Russell, as cited by Haggard (1988:533), suggests that critical thinking involves "A general attitude of questioning and suspended judgement; a habit of examining before accepting."

Literature can be used to teach critical thinking skills. Everyday decisions and problems require critical thinking. Since literature reflects life, readers can easily identify with the characters in story situations. A grid designed by Ashby-Davis (1986) is used for this comprehension strategy to provide a record of clues and interpretations to lead students to make generalizations about characters, plots, or settings. "Developing criteria for evaluating generalizations is an important aspect of critical thinking for students to learn" (Commeyras, 1989:707).

Marzano et al (1988) report on two reading comprehension strategies that activate prior knowledge as students summarize, ask questions, clarify information, and make predictions. Reciprocal teaching , developed by Palincsar and Brown (1984), has students take turns "playing teacher" by asking each other questions on reading material. The second reading comprehension strategy, K-W-L, was developed by Ogle. K-W-L stands for (K) What I know, (W) What I want to find out, and (L) What I learned. Before reading a selection, students identify what is known about the subject and what is to be found out during

the reading activity. Then students read the selection and identify what was learned.

Burnett and Berg (1988) report that schools emphasize mastery of basic reading skills from elementary through high school rather than gradually increasing comprehension instruction. The reason being one of class management. A combined approach which requires more and more interpretation by the reader should be the main teaching strategy of reading instruction. The 1988 report suggests that metacognitive techniques help the reader focus on and monitor comprehension techniques. Semantic mapping aids the student in thinking about the reading material by showing how to develop an organized visual pattern of accumulating data. The system of survey, question, and read is used. In the system of semantic mapping, however, a picture is drawn either during or after the reading selection by the reader to organize thoughts. One example of this is drawing a wheel with spokes. The main idea is placed in the center circle with supporting details at the end of the spokes.

The next reading comprehension strategy reported on by Burnett and Berg (1988) is intergrating reading and writing. When using this technique students

write down experiences or stories and then read what was written either silently or to peers. Atwell, as cited by Burnett and Berg (1988:210), points out that "children need to read, write, speak, and listen not to build skills, but to communicate with each other." And Silvers, as cited by Burnett and Berg (1988:210), contends that "when teachers teach reading and writing as related processes rather than as isolated skills, greater learning occurs."

The third strategy to improve reading comprehension as reported by Burnett and Berg (1988) is that of asking questions to give students an opportunity to think about what has been read. Students need to articulate thinking. One way is to mentally invent and answer one's own questions. Christenbury and Kelly, as cited by Burnett and Berg (1988:210), report "Questions can help students to find their own 'voice' and to develop critical thinking skills through exploration, argument, and interaction with peers." Stimulating critical thinking should be the goal of teachers when asking questions.

Students' natural thought processes can be improved through systematic study and instruction.

Hudgins et al (1989) developed a model of students' thinking called self-directed critical thinking. Two basic components that make up this model are cognitive and motivational. The cognitive component is composed of three intellectual skills. These skills are task definition, strategy formulation, and monitoring the critical thinking process. The motivational component means that cognitive activity occurs independently of external promptings or urgings.

In the experimental model of self-directed critical thinking, Hudgins et al (1989) put students into groups of four. Each student was given a role to play. The roles were task definer, strategist, monitor, and challenger. Students played each role three times each to ensure comprehension of the role. The task definer determined what information from the problem would be focused on and how it would be organized. The strategist elicited and organized all pertinent information. The monitor made sure that the goal was kept in sight and that no informational or reasoning errors were made. The challenger's role was to demand evidence for any conclusions and to encourage everyone in the group to participate. The groups were presented with everyday type problems to

solve. When these trained students were compared to a control group of untrained students, the results proved successful. Students trained in self-directed critical thinking utilized significantly more information contained in the problem and arrived at better conclusions or answers to the problem. "In short, the critical thinker must be an independent thinker. He or she must know what questions need to be asked, and when to ask them" (Hudgins et al, 1989:330).

"Problem solving is a thinking process. Applying thinking skills to problems in text makes it virtually impossible to segregate reading skills into individual compartments" (Flynn, 1989:665). The IDEAL approach to problem solving works well with cooperative learning techniques. Flynn reports that IDEAL is an acronym for a five step problem solving process that includes the key skills of identifying, defining, exploring, acting, and looking. Cooperative learning fosters the development of critical thinking through discussion, negotiation, clarification of ideas, and evaluation of peers' ideas. In cooperative learning students are arranged in heterogeneous groups and given a task to accomplish. This arrangement

encourages discussions and builds self confidence. Individual accountability means the success of the group depends on the contribution of each student. Over time students become more proficient as individual problem solvers.

Reading instruction that promotes thinking goes beyond pronouncing all of the words correctly. The meaning of the words put together on the page is what reading is all about. The understood meaning of the author should generate thinking in the reader. If the reader perceives a problem then the reader should be equipped to attempt to solve the problem using thinking skills. Reading, thinking, and solving problems are interrelated. Students need to be taught how to attack problems using critical thinking and reading comprehension strategies. Independent thinkers and problem solvers are the only hope this country has for democracy to survive and thrive.

Solution Strategy

After reviewing the research on strategies to improve reading comprehension, the author has chosen to use a checklist consisting of before, during, and after reading questions and activities. Prior

knowledge, questioning, monitoring, reading, writing, and discussion with peers will be incorporated in the checklist to focus students on understanding and using what is actually being read. Students will be put into small heterogeneous groups for these reading activities. The reading assignments will challenge the thoughts of the readers. A product of a written assignment, a picture drawn, or a problem solved will be the end result of each of these reading activities. Materials necessary for these projects will be a copy of the checklist, reading assignments, paper, pencils, and any materials needed to solve problems. Students will begin the project in groups of five. The groups will decrease in size at the midpoint of the practicum project. Students will develop confidence and mastery in their efforts to understand and use what is read by learning self-directed critical thinking strategies.

Hudgins' model of self-directed critical thinking and Flynn's IDEAL approach using cooperative learning influenced the choices made in the solution strategy. Burnett and Berg's emphasis on stronger instruction in reading comprehension as students progress in school was also a great influence. The two reading comprehension strategies, K-W-L and reciprocal

teaching, reported by Marzano et al will be included in the design of the self- directed checklist.

The strategies chosen were found to be consistent in the survey of literature on reading comprehension, critical thinking, and problem solving. Using these strategies were found to contribute to students becoming more proficient as critical thinkers and problem solvers. Only when students learn how to comprehend what is read, can students become independent learners and critical thinkers. "Children must be taught how to use comprehension skills in a strategic manner to achieve legitimate, personally relevant goals" (Winograd and Greenlee, 1986).

CHAPTER III

Method

The practicum project was implemented for a period of twelve weeks. To prepare for implementation of this project, the author designed a reading strategies checklist (Appendix A: 33). This checklist was used three days a week. Sixth grade students worked in heterogeneous groups of five for the first six weeks and groups of three for the last six weeks. Students were regrouped on a bi-weekly basis to ensure that familiarity did not encourage dependence on certain members in a group.

The checklist was designed to be used to help students develop a strategy for reading. The checklist was written in the first person to encourage students to take ownership of the concepts and was divided into three sections: what to do before reading, while reading, and after reading.

The first section instructed students to gather materials. Students needed the reading selection, a dictionary, paper, and pencils. Students needed to look over the reading selection and ask themselves

questions. One question asked what is already known about the subject. This helped the students to relate to what was about to be read. The other questions were asked so students would make some predictions. Finally, students discussed prior knowledge and predictions with other members of the group.

The second section involved the actual reading of the reading selection. Students read silently to see if predictions based on the questions were correct. Students were reminded on the checklist to look back over or reread any parts that did not make sense. Any unfamiliar words would be noted and looked up in the dictionary. Vocabulary would be enlarged as a result.

The third section directed students on what to do after reading. First, students thought about prior predictions. Students needed to also think about any information that was not included in the reading selection. This helped students to realize that sometimes not all of the information is given to the reader and would have to be searched for in other sources. Next, students discussed thoughts with the group and decided what information was important enough to be included in a summary. This helped students to get to the real meaning of the reading

selection by sorting through details. Students were then required to write a brief summary, which helped to organize and clarify thoughts. So that students could find personal relevance, students were asked to answer a question on how this information could be used now or in the future. And finally, students worked with the group to complete activities or solve problems.

Week One

Students were surveyed on opinions on solving problems (Appendix B: 34) and given pretests on following directions (Appendix C: 36) and solving problems (Appendix D: 39).

Week Two

Students were given checklists, copies of the reading selection, and assigned to groups. The reading selections used were stories one through three from Fantastic Mystery Stories, by Anne Moody and Jim Whiting (1981). Students were led through each step of the checklist, using teacher modeling. After all activities were completed, students stapled the checklists to completed assignments and turned in to

the teacher. These assignments were kept by the author for documentation of students' improvements.

Weeks Three through Six

Students were given checklists and copies of reading selections each time the practicum project was implemented. Students were assigned to different groups on a bi-weekly basis. The reading selections used were stories from Fantastic Mystery Stories and critical thinking exercises from Mastermind, by Zacharie J. Clements and Richard R. Hawkes (1985). Students worked through each step of the checklist without teacher modeling. The teacher monitored students' progress by walking around the room and listening to group discussions. This was to keep students focused on critical reading tasks. The teacher was also a time-keeper. A timer was set to ensure that all students read silently and wrote summaries at the same time. No talking was allowed during these critical times. At the end of each class, students stapled checklists to completed assignments and turned in to the teacher, which was kept for used to evaluate student progress and success of the practicum project.

Weeks Seven through Eleven

Students were given checklists and any needed copies of reading assignments. Students were then assigned to heterogeneous groups of three. This meant that each student now had a greater responsibility to the group. Students continued to read the critical thinking exercises from Mastermind. In addition, students used reading assignments from the subject areas of reading, social studies, science, math, and language arts. The teacher continued to monitor students, kept time during silent reading and summary writing, and collected completed assignments.

Week Twelve

Students were surveyed on opinions on solving problems (Appendix B: 34) and given posttests on following directions (Appendix C: 36) and problem solving (Appendix D: 39). Since no discussion of the pretests was made and a period of eleven weeks passed between tests, the same tests were used for the posttests. The same students' answers could be compared on the pretests and posttests. Monitoring and adjusting occurred throughout the practicum project.

CHAPTER IV

Results

To evaluate the success of the practicum project on students' mastery of math story problems, the author used a pretest and posttest, which was the same test. The pretest was given the first week and the posttest was given the last day of the practicum project. The pretest/posttest was teacher-made and consisted of a paragraph containing information that was needed to answer questions. Before learning to use reading strategies on the checklist, 87 percent of the sixth grade students answered less than 80 percent of the questions correctly on the pretest. After learning to use the reading strategies from the checklist, 83 percent of the sixth grade students answered at least 80 percent of the questions correctly on the posttest. The other 17 percent of the sixth grade students answered 60 percent or less of the questions correctly on the math story problems posttest. All students spent more time on the posttest, showed how problems were worked through, and answered with complete sentences.

The author evaluated the success of the practicum project on students' attitudes on math story problems for homework assignments by conducting student surveys before and after implementation of the practicum project. Students answered questions in writing. A comparison of students' answers on the questionaires was made. Students' responses showed 10 percent more positive answers on the questicnaire given after the practicum project as compared to responses on the questionaire given before the intervention. Students did not change attitudes very much toward math story problems for homework. Students' answers did show a better understanding as to why homework is given and why math is important in life. Students' answers also showed more positive attitudes toward math in general.

The author evaluated the success of the practicum project on students' abilities to independently follow written directions by giving the target group a set of written directions in the form of a test. Students were given a pretest before the practicum project began and a posttest after the intervention. The posttest results demonstrated the success of students' learning how to independently follow directions by 87 percent of sixth grade students in the target group

scoring 80 percent or better on the posttest. The other 17 percent of sixth grade students scored at least 60 percent on the posttest. Students answered in complete, detailed sentences on the posttest. The target group transferred this skill to all subject areas, which was judged to be a huge success by the author.

The author evaluated the success of the practicum project on students' improved ablities to summarize reading material by monitoring students' written summaries during the 12 week implementation period. Summaries written by 93 percent of sixth grade students in the target group showed a 60 percent improvement in noting important details and leaving out unimportant information. Summaries included the main ideas. The other seven percent of sixth grade students in the target group demonstrated at least a 10 percent improvement in noting important details, including main ideas, and leaving out extraneous information. The improvement of the target group's written communication as a result of this intervention was greater than the author's expectations.

CHAPTER V

Recommendations

The RSC (Reading Strategies Checklist) can be used in almost any subject with any group. Good readers use the RSC to reinforce the good reading strategies already in place. For poor to average readers the RSC is especially useful because these students are placed with good readers to practice these strategies. When students are put into heterogeneous groups and given interesting subjects to work out together, then true cooperative learning and critical thinking takes place. The RSC is a program to follow in this setting. When students become proficient in using the RSC, teachers can back off while students take on the learning task at hand. The teacher then ends the lesson by leading a whole group discussion of the students' findings.

The RSC is especially useful in science, social studies, literature, and any mathematical word problems. Students get involved in learning and display a genuine interest in the subject being discussed when brought back into whole class group

discussions.

In conclusion, the author recommends that the RSC be implemented at the start of the school year and used with intermediate grade students. As the year progresses and students are automatically using the strategies in all subject areas, the RSC can be formally used as a plan to get the most out of certain lessons. The use of the Reading Strategy Checklist will increase students' understanding and achievement.

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APPENDIX A

READING STRATEGIES CHECKLIST

READING STRATEGIES CHECKLIST

BEFORE READING:

_____ 1. Get supplies: Dictionary, paper, pencils

_____ 2. I need to look over the reading selection.

_____ 3. What do I think this is about?

_____ 4. What do I already know about this subject?

_____ 5. What are some questions I think this reading will answer? (Jot some down.)

_____ 6. Discuss my thoughts with others in my group.

WHILE READING:

_____ 1. Now I will read silently to see if my questions will be answered. If something does not make sense to me, I will reread parts or look back when I read. I will look up any words that I don't know to get a clearer meaning of what I am reading.

AFTER READING:

_____ 1. How were my questions answered?

_____ 2. What information do I still need?

_____ 3. Now, discuss my thoughts, answers, or any new words with my group.

_____ 4. I will decide what information is important and what is unimportant.

_____ 5. I will write a paragraph summarizing what I just read. I will remember to indent, use a topic sentence, and several detail sentences.

_____ 6. How can I use this information now or in the future?

_____ 7. Now I can work with my group to complete the activities or solve the problems.

APPENDIX B

SURVEY

SURVEY

MATH STORY PROBLEMS FOR HOMEWORK

1. How do you feel about math homework?

2. Why do you think you are given homework?

3. Why is math important in your life?

4. Do you like to do story problems in math? Why or why not?

5. Do you like to do math story problems at home? Why or why not?

6. Would you rather do math problems or math story problems? Why?

7. Would you rather read a good book or do math story problems? Why?

8. If you could choose your own homework, what would you choose to do? Why?

9. Do you like math? Why or why not?

APPENDIX C

FOLLOWING DIRECTIONS TESTS

PRETESTS/POSTTESTS

FOLLOWING DIRECTIONS AND PROBLEM SOLVING

NAME:_____ DATE:_____

BILL'S SUPER BOWL PARTY

Bill Jones is having a super bowl party! He loves to entertain family and friends. His wife, Sue, does not mind because Bill loves to do all of the cooking. He plans to serve "Buffalo Bill's Chicken Wings" and "Super Bowl Punt Cake." These are his specialities, but he does plan to serve other goodies as well. Bill does his shopping at the supermarket located two miles west and one mile north of his home. Bill and Sue have three sons and one daughter. Bill is inviting 12 friends to his party.

FOLLOWING DIRECTIONS

The recipe for "Buffalo Bills Chicken Wings" calls for two pounds of chicken wings, cut in half first, and two tablespoons each of hot pepper sauce, vegetable oil, and lemon juice. Other seasonings needed are one teaspoon celery salt and one-half teaspoon ground red pepper. The recipe also calls for one cup prepared blue cheese dressing, celery sticks,

and carrot sticks. Bill will need to gather all the ingredients before he begins.

To prepare, place wings in large plastic bag. Add remaining ingredients, except blue cheese dressing and celery and carrot sticks. Close bag securely, toss to coat chicken thoroughly, refrigerate several hours or overnight, drain. Arrange in single layer, on rack, in baking pan. Bake in 375 degrees F oven for 35 minutes. Broil five minutes or until browned. Serve with blue cheese dressing and celery and carrot sticks. Serves six. Answer the questions below.

1. What is the very first thing Bill will need to do?

2. What should Bill do to the wings before he puts them in the plastic bag?

3. What will Bill put into the bag with the wings?

4. What will Bill do to the wings after he tosses them in the bag to coat the chicken?

5. How long will Bill cook the wings?

APPENDIX D

PROBLEM SOLVING TESTS

PROBLEM SOLVING

The "Super Bowl Punt Cake" is a chocolate cake that is shaped and decorated like one-half of a football. Bill enjoys impressing his friends by baking this cake. However, when Bill was shopping he forgot to buy a tube of green frosting.

To make one cake, Bill needs one package (18.25 oz.) devil's food chocolate cake mix, one can (16 oz.) prepared chocolate frosting, one tube (three-fourths oz.) white frosting, and one tube (three-fourths oz.) green frosting. When Bill has gathered all the ingredients, he can begin to make the cake. First, preheat the oven to 350 degrees F. Grease and flour football shaped cake pan. Put cake mix in a large bowl. Add three eggs, one cup of water, and one-third cup of cooking oil. Mix at medium speed for three minutes. Pour cake mixture into the football cake pan. Bake 50 minutes or until toothpick inserted comes out clean. Remove from oven. Cool on wirerack for 10 minutes. Frost cake with chocolate frosting. Create laces and stripes with white frosting, and grass surrounding base of football with green frosting. Serves 12.

Answer the questions on next page.

Questions:

1. How far will Bill have to drive to make the extra trip to the store for the green frosting?

2. If all of Bill's friends and family attend the party, how many people will Bill plan on serving at his party?

3. How many cakes will Bill need to bake?

4. How many total ounces of frosting will Bill have used when he is finished decorating the cakes?

5. What portion of a cake would a suggested serving size be?